



November 3, 2003

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Summary

- Large scale solar today
- Cost / benefit analysis
- PV increases product value
 - Unique product appeal
 - Unique product offerings
- Minimizing solar kWh costs







PowerLight: Grid-Tied Solar Electric Leader

- PV Sys Manufacturer & Solutions Provider Focus: Commercial / Gov't / Utility
 Over 50 patents on PV systems
- Based in CA Bay Area;
 Offices in Los Angeles, NJ/NY, HI
- High internal growth
 - 1) 50% 100% ann. growth since '97
 - 2) Inc. 500 List last 4 Years
- Winner of Solar Elec. Power Assoc.'s 2003 PV Business Leadership Award





MW Sized PV Projects More Common



1100 kW S.R. Jail: CA '01

500 kW FTB: CA '02

500 kW Toyota: CA '03



500 kW Mauna Lani, HI '98 -'02



1 MW US Navy: CA '02



500 kW Neutrogena, CA '01



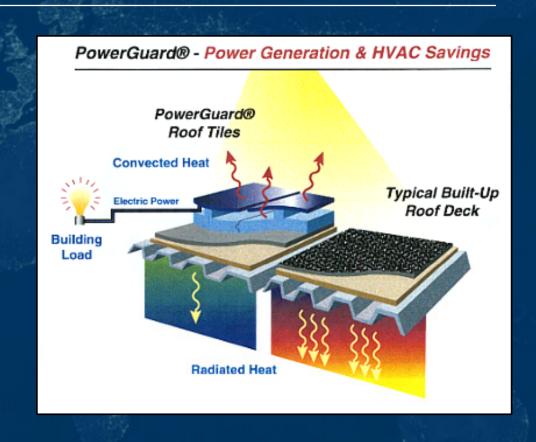
650 kW Janssen, NJ '03



Example of Industry Solar Roofing

PowerGuard®

- Lightweight
- No roof penetrations
- Insulates roof
- Pre-engineered
- UL listed
- Class B Fire Rating





PowerTracker Panels that Follow the Sun

- One-axis horizontal tracking
- One controller, motor, and drive up to 20 rows.



- Patented, Reliable. Cost-effective.
- Over 8 MW Fielded
- 18% to 35% energy gain





Tracker - Ground Mounted





Tracker over Covered Parking





Cost / Benefit Analysis: Portfolio Economics with a 250 kWp PV System

Base Case

Source	Unit Cost (\$/MWh)	Amount (MWh)	Unit Cost (Annual \$)
Wind/Biomass Solar	50.0 0.0	12,000	600,000
Blended \$/MWh	n: 50.0	Total:	600,000

Northern State (no state PV incentives) - 250 kWp

Source	Unit Cost	Amount	Unit Cost
	(\$/MWh)	(MWh)	(Annual \$)
Wind/Biomass	50.0	11,750	587,500
Solar	250.0	250	62,500
Blended \$/M	IWh: 54.2	Total:	650,000

Southern State (some state PV incentives) - 250 kWp

Source		Unit Cost	Amount	Unit Cost
		(\$/MWh)	(MWh)	(Annual \$)
Wind/Biom	nass	50.0	11,700	585,000
Solar		100.0	300	30,000
	Blended \$/MWh:	51.3	Total:	615,000



What is the rationale for increased kWh costs?

Unique appeal

Lower marketing costs



Unique Appeal: Local Presence in Heart of Service Area

Hypothetical examples using real life installations:

Moscone Convention Center, San Francisco

Coast Guard Building, Boston







Unique Appeal:Ability for Tangible Interaction with Public







Unique Appeal: Greater opportunity for "free" positive marketing

"All the News That's Fit to Print"

The New Hork Times

National Edition

Southern California: Coastal clouds near the Mexican border. Sunny elsewhere. Highs in the 17's at the coast-tonear 10' in the southern deserts. Details are in SportsSunday, Page 18.

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THE NEW YORK TIMES, SUNDAY, OCTOBER 12, 2003

Business

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In Search of Savings, Companies Turn to the Sun

By JIM RENDON

CHNSON & JOHNSON, an icon of Amerkan corporate culture, is showing a growing interest in a technology one associated with backwoods cabins and pockec calculators. Like a mamber of other large companies, Johnson & Johnson has begun to generate its own power from the sus.

Solar power has evolved from being an expensive, pie-in-the-sky technology to one that is finally beginning to make business sense. Recent electricity shortages in California, the continuing gyrations in energy prices over all, and new state and federal in-centives are among the reasons for compalier' efforts to start or expand their use of the technology.

On a blustery fall aftermoon, the solar installation on the roof of the United States beadquarters of Johnson & Johnson's Jameson beadquarters of Johnson & Johnson's Jameson Hill, N.J., is producing 145 kilowatts of electricity, enough to power 165 homes. At their peak, the 2,350 colar panels can produce about 306 kilowatts of energy, making this one of the largest solar installations on the East Coast. The system provides about 10 percent of Janssen's amust electricity

While Johnson & Johnson has corporate policies that support the use of green power, a large part of the docision to install the system, as well as three others on its buildings in New Jersey and California, was econom-

"We looked at solar power two or three years ago, but we never got into the ballgame because the incentives were not there," said John Subacus, Janesen's direc-



Solar panels on a Domaine Carneros wine facility in Napa, Calif. The company received a 50 percent state rebate on its system

ECONOMIC VIEW

Rhetoric Vies With Reality On a Hot Topic: Jobs

OBS — the loss of them over the past three years and plans for creating them in coming years — have moved quickly to the center stage of the young presidential campaign.

presisiontal campaign.
PresidentifyBush and his aides refer to
the recent tax cut, almost without exception, as the "jobs and growth" package.
Howard Dean, the former Vermont governer seeking the Democratic nomination,
said on Wednesday that he expected jobs
to be the rose's biggest issue. Senator beseph I. Lieberman of Connection, another
Democratic candidate, interrupted himself in a recent debate to announce, "This is all
about jobs."

With the attention has come an escalating battle between the parties to define the terms of the debate and the numbers gived in it. To no one's surprise, that battle includes some hyperbole. Here is a guide to the economic rheoric of the 2004 election:
DEMOCRATIC EXAMORRATION in their stump.

speeches, many Democratic candidates including Senators John Edwards of North Carolina and John Kerry of Massachusetts



Unique Product Offerings

- 1) "You make a difference" product:

 If x customers sign up, we'll put a PV
 system in your area
- 2) "Show your commitment" product:

 Purchase our green kWh and we'll put in a flagship PV system at your site
- 3) "Real PV" product:

 We are putting in 100 kW 1 MW solar systems



How to Minimize Solar kWh Costs

- Use "Hunting License" method vs. Straight kWh Purchase
 - Negotiate price and term
 - Then give PV developer 6 months to fulfill
- Bring a commercial or government customer to the PV developer
- Buy > 100 kWp systems (> 250 kWp for best pricing)
- Buy multiple systems with one or more co-purchasers
- Hire a PV developer to do a thorough analysis
 - Consulting-style report clears up ambiguity



Conclusions

- Solar has unique attributes
- Its cost can be offset by its increased value
- Start planning for a >100 kWp system today!



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